

## REMARKS

Amended claim 11 and new claims 12-16 remain in the application.

The rejection of claim 11 under 35 USC 103(a) as being unpatentable over Fletcher et al, U.S. 5,290,427 ("Fletcher") is respectfully traversed. Fletcher discloses a process for sweetening a naphtha stream, which requires an initial step in which the full stream is treated to convert mercaptans into heavier compounds (Abstract, col. 2, lines 29-33, col. 7, lines 19-21 and otherwise generally in the specification and claims) in order to remove the mercaptans from the lighter portion of the naphtha into the heavier portion, then the treated full boiling stream is fractionated to remove the mercaptan free lighter portion away from the heavy portion where the sulfur compounds are segregated. Although Fletcher notes that the treated feed may be fractionated to two or more fractions (col. 4, lines 18-20), there is no further discussion of that or any reason for such additional cuts. The higher boiling fraction which contains the sulfur compounds is then hydrodesulfurized, under conventional conditions (col. 8, line 24 *et seq.* Those of skill in the art would understand from this that the entire heavy fraction is used to reduce the sulfur content to the desired level by the severe treatment conditions described which would result in the reduction of the olefins in that fraction which applicant constitutes as the intermediate fraction.

In the present claimed invention the fully boiling range cracked naphtha is first fractionated into three fractions, a light (C<sub>5</sub> to about 150°F), an intermediate (150 to about 250°F) and a heavy (250 to 450°F). The heavy is first hydrodesulfurized, then

combined with the intermediate and the combined streams hydrodesulfurized. The light FCC naphtha cut in the splitter just below the light fraction also contains mercaptans and a significant amount of thiophenes. The total sulfur content of the thiophene cut is relatively low and more significantly does not require as severe treatment as the sulfur compounds in the heavy fraction to convert the thiophene to  $H_2S$ , thus the olefins in the thiophene cut (intermediate cut) are less likely to be hydrogenated. Spec. page 3, line 29-page 4- line 3. Unlike the Fletcher process where the intermediate fraction is treated as one with the heaviest fraction. In addition by separating the intermediate cut and the heavy cut the quantity of feed subjected to severe hydrotreating conditions is reduced, thus reducing the size and capital investment of the hydrodesulfurization distillation column reactor for the most severe service. The polishing reaction where the previously treated heavy fraction and intermediate fraction are combined is operated under less severe hydrotreating conditions and thus the equipment is less costly on that count as well as the preservation of the olefins.

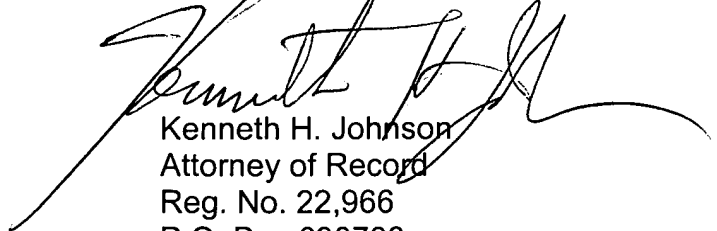
In this preferred embodiment the light fraction is separately treated by a wet caustic wash wherein substantially all of the mercaptans are converted to sulfides which are easily separated by fractionation.

Conceptually as well as factually the present invention is distinguished from that of Fletcher in that it is the separation of the streams that is the salient element of the present invention, followed by the selective treatment (or in the case of the intermediate

cut the non treatment), all to the advantage of the better product with lower equipment cost; whereas Fletcher is primarily a pretreatment followed by a fractionation.

Reconsideration and allowance of the claims is respectfully solicited.

Respectfully submitted,



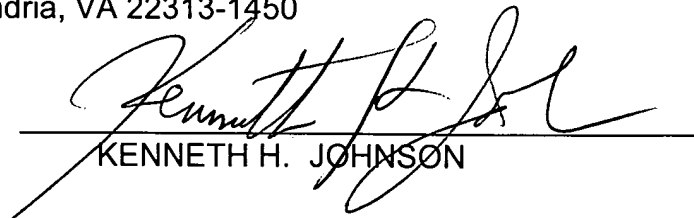
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